



April 12, 2007



## Offshoring work, not jobs

**Offshoring is an engine of change.** Offshoring is a term to describe the shifting of IT services and back-office services to low-wage countries. Studies show that offshoring generally does entail welfare gains for the economies involved and that, on balance, no job losses are to be expected in the countries shifting activities abroad.

**No net job losses despite creation of 1.6-2.1 million jobs offshore.** The number of offshore jobs created in locations from India to Eastern Europe – between 1.6 million and 2.1 million for the markets in Europe and the US – says little about the net employment effect in the countries shifting jobs abroad. Ultimately, the demand for labour there rises at the same time thanks to an increase in productivity and additional exports.

**Labour market merry-go-round creating adjustment burdens.** We estimate that between 290,000 and 390,000 additional offshore jobs will be created this year for the markets in Europe and the US. However, the countries that lose jobs to offshoring will not necessarily see new jobs arise in the same area. Often this requires the persons affected to change occupation or location, which they may consider a burden.

**Structural change favours higher-skill jobs.** Experience garnered in the American IT sector shows that the demand for labour then shifts in favour of high-skill jobs, while low-skill jobs are cut back (see chart). Offshoring is a part of this structural change.

**Offshore locations climbing up the value chain.** Going forward, many offshore locations will increasingly offer complex and sophisticated services, too. This will foster the specialisation of economies in different sectors, products and product variants – without jeopardising the welfare of today's industrial countries if they should choose to actively embrace structural change.

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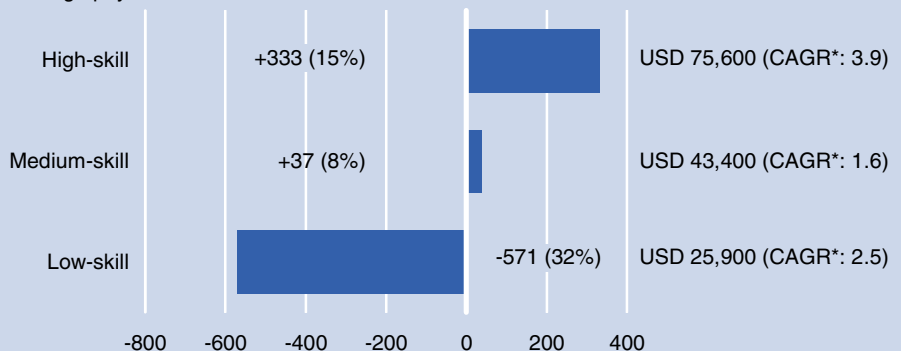
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### Structural change favours higher-skill jobs

IT-sector employment in the US by job level, change in employment 1999-2005 ('000) and average pay



\*Compound annual growth rate (nominal) between 1999 and 2005. Sources: BLS, DB Research, 2006

### India: The world's back office

2006, USD bn

	Revenues	Exports
IT	17.5	13.2 (75%)
BPO	7.2	6.3 (87%)
R&D	4.8	3.9 (81%)
Total	29.5	23.4 (79%)

BPO = Business Process Outsourcing

Estimates. Source: NASSCOM, 2006

1

We have got used to a specific concept of trade: rich industrial countries importing raw materials and cheap plastic toys from emerging markets and exporting high-tech goods and high-quality services in return. But this is a very imperfect description of the actual trade flows: in India, for example, there are nearly 1.3 million people – most of them well educated and ambitious – working in the IT industry. They mainly produce IT and back-office services (BPO services), nearly 80% of which are exported (see chart 1). India is thus the most important offshore location in the services sector.

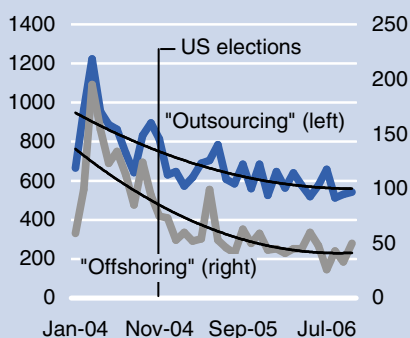
While factory workers have long been accustomed to the fact that they compete with counterparts all over the world, the situation has hitherto been cosier for many office workers: their work has been too closely linked with the domestic market to be seriously jeopardised by the prospect of offshoring. However, thanks to advances in computer and software technology, many workflows can now be standardised and modularised. Numerous services can now be produced in processes involving a division of labour and then sold through worldwide data networks. By offshoring, that is by relocating IT and back-office services to low-wage countries, companies can reap the benefits of international differences in wages and advantages inherent in specialisation.

In principle, offshoring is no different from other forms of trade. An international division of labour and specialisation boost productivity – with welfare gains for the participating economies. The usual restrictions described in economic literature also apply to offshoring.<sup>1</sup> Their empirical relevance is limited, though; overall, the positive correlation between trade and economic growth is well documented.<sup>2</sup>

### Calm before the storm

#### Calm before the storm

Mentions in German and English newspapers (per month)



Source: Factiva, 2006

2

“Outsourcing” and “offshoring” have made it to the headlines of many publications, even though the trade volumes involved are still relatively low. The debate spiked in 2004 in the run-up to the US presidential elections, but it has cooled off somewhat in the meantime (see chart 2). Besides fewer mentions in media reports, many companies have also taken a more differentiated stance on the issue. The debate over offshoring is likely to heat up again over time, though.

Three reasons in particular will fuel the debate:

1. **Offshoring growing faster than other trade flows:** Estimates put the growth rates at close to 18% per year in the US and close to 16% in Western Europe.<sup>3</sup> This means more jobs in the industrial countries will be affected, which will grab more attention.
2. **Offshore locations climbing up the value chain:** This makes them competition for the companies which employ the broad middle class with their good job qualifications in the industrial countries. The resulting adjustment processes will therefore not play out unnoticed.

<sup>1</sup> See Bhagwati, Jagdish, Arvind Panagariya and T. N. Srinivasan (2004). The Muddles over Outsourcing. The Journal of Economic Perspectives. Vol. 18. No. 4. pp. 93–114.

<sup>2</sup> See Neuhaus, Marco (2005). Opening economies succeed: More trade boosts growth. DB Research. Current Issues. Frankfurt am Main. November 11, 2005.

<sup>3</sup> Projected growth rates for IT offshoring for the period 2005 through 2010. See IDC (2006). Worldwide and US Offshore IT Services: 2006-2010 Forecast. Market Analysis No. 202411. Volume: 1.

3. **The US presidential election in 2008 will provide a new forum:** Election campaigns are times in which arguments and positions are formulated in a controversial and polarised manner. Particularly the influence of globalisation on wages and employment (now also in the services sector) is a popular issue for debate. Moreover, the Democrats – who won the majority of the seats in the House of Representatives and the Senate during the mid-term elections in 2006 – tend to view free trade more sceptically.

The (anti-)globalisation debate underscores a basic problem in this conflict. The benefits of free trade are spread among many people – through lower prices, more choice etc. By contrast, the adjustment costs are often borne by just a few groups whose income or employment situation comes under pressure. This is why the resistance among those affected is frequently so much more pronounced than the support among the beneficiaries.<sup>4</sup>

### Broad acceptance of free trade – but fear of job losses

In a survey by the German Marshall Fund of the United States, around 75% of those surveyed in Europe and 71% in the US said that they welcomed international trade. The highest approval rating, at 83%, came from the world's biggest exporter, Germany. Moreover, the acceptance of trade rose in year-on-year terms in all the countries covered with the exception of France.<sup>5</sup> Even though many people generally welcome trade, they still fear that further liberalisation will lead on balance to job losses (see chart 3). Particularly in the US – a leader in the field of offshoring – such worries are widespread. The people's fears should be taken seriously so their general approval of free trade continues. The urge towards protectionist measures could be mitigated for instance by solutions which help workers to adjust to the changing economy.

Much scepticism is being voiced on the issue of offshoring in particular: during a survey conducted by Deloitte and YouGov in the United Kingdom, 82% of the participants responded that enough jobs had already been relocated because of offshoring; 32% demanded that British companies be compelled to repatriate such jobs. A mere 4% said they supported more offshoring. It appears tempting for politicians to derive a populist mandate from such sentiment.

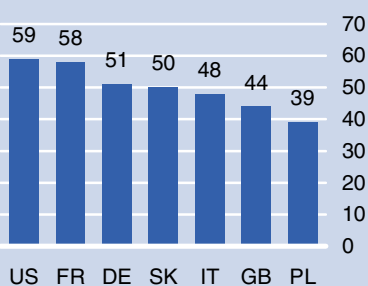
### Challenge for the future: Mitigate adjustment burdens

The growth of the offshore locations is impressive: going forward, many offshore locations will increasingly offer complex and sophisticated services too.<sup>6</sup> The prospect of low-wage workers doing high-skill jobs leads many employees in the industrial countries to feel threatened after having believed their skills and education would shield them.

But anyone seizing on this argument to declare a “world war for wealth” would be guilty of faulty logic. Countries with the necessary resources – well-educated employees, infrastructure, institutions etc. – for a broad assortment of high-skill activities are, for these

#### Afraid of job losses

Do you agree that freer trade costs more jobs than it creates? A: Yes (%)



Source: German Marshall Fund, 2006

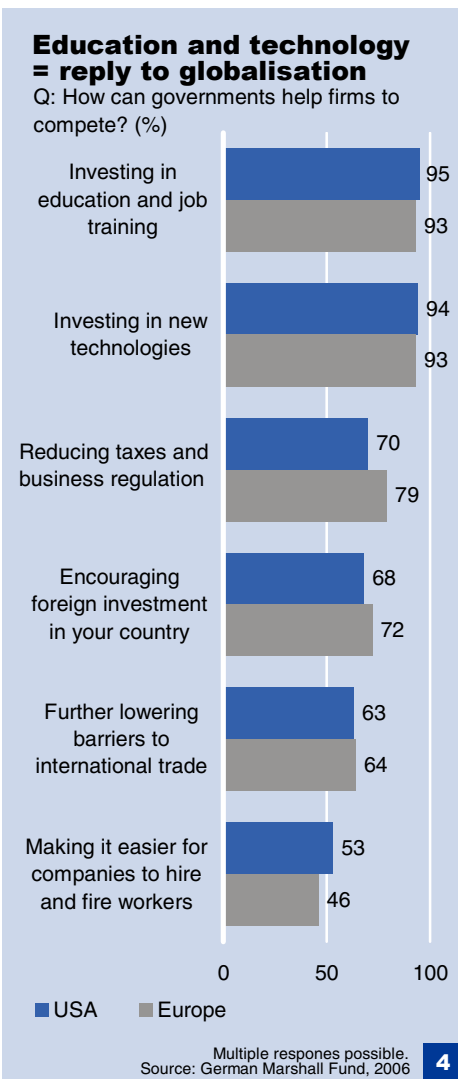
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#### Impressive growth in offshore locations

<sup>4</sup> See Olson, Mancur (1965). *The Logic of Collective Action: Public Goods and the Theory of Groups*. Harvard University Press.

<sup>5</sup> German Marshall Fund of the United States (2006). *Perspectives on Trade and Poverty Reduction. Key Findings Report 2006*. www.gmfus.org. pp. 5-7.

<sup>6</sup> See Meyer, Thomas (2006). *Offshoring to new shores: Nearshoring to Central and Eastern Europe*. E-economics No. 58. DB Research. Frankfurt am Main. p. 12 f.



**New Trade Theory explains intra-industry trade**

**Consumers love variety**

very reasons, not poor countries and thus not low-wage countries any longer.

So what it boils down to is that today's industrial countries cannot be systematically squeezed by the factor costs and the product quality in the offshore locations at the very same time. Of course, this does not rule out precisely this situation arising in a few sectors, but it is impossible at the macroeconomic level.

Theoretical considerations and empirical observations suggest that, as a whole, offshoring generally has positive effects – wealth grows with a rise in productivity. Nevertheless, the adjustment burdens should not be underestimated. Especially in societies where employees have little geographical or social mobility, where the labour market is not very flexible and where the share of specialised vocational education is particularly high, the changes may be accompanied by allocative disruptions.

In the industrial countries the challenge of offshoring lies mainly in mitigating the effects of the adjustment processes and keeping the burdens to a minimum. As the offshore locations catch up in economic development, specialisation, innovation and flexibility will become crucial for competitiveness. Setting up and developing the right basis to promote these factors is the best form of preparation and such efforts will be supported by a large part of the population – at least at the general level (see chart 4).

**One phenomenon – two theories**

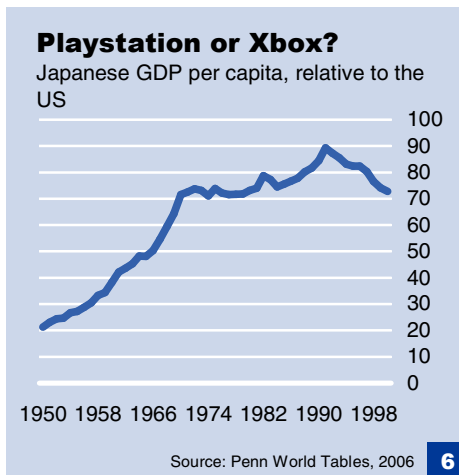
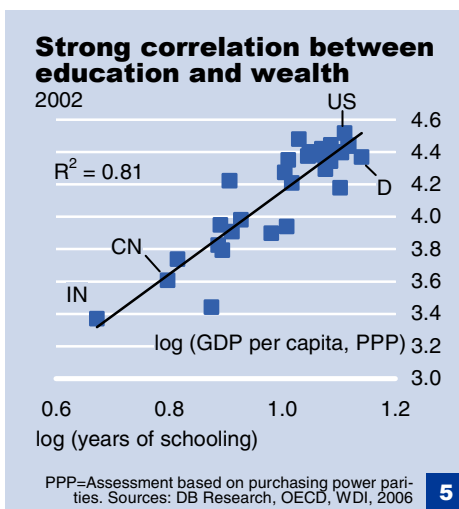
International trade can be explained – very roughly – by two theories. Classical trade theory essentially follows the argumentation of David Ricardo (1817)<sup>7</sup> and sees the main advantage of trade being that countries (and regions) specialise their production in what they can do best (their comparative advantage), export their surplus output and import all other goods. By focusing on comparative advantage, their productivity rises, for only the goods that show the highest productivity differential are manufactured in the domestic market. Typically, the form of specialisation is geared to the resource endowments: countries with a large supply of capital and skilled labour will tend to specialise more in capital and knowledge-intensive goods; countries with a shortage of skilled workers will tend to focus on low-skill activities. This chain of logic gives a pretty good description of inter-industry trade, especially between industrial and developing countries.

Yet, the most extensive flows of goods are between countries endowed with relatively similar resources – the industrial countries. Classical trade theory cannot explain why, for example, Europe imports cars from Japan while at the same time exporting cars to Japan. The supply conditions in the two regions resemble each other too closely. The explanation for this intra-industry trade, i.e. trade in similar goods, lies in a combination of supply and demand factors that are described in the context of the New Trade Theory.

On the one hand, consumers love variety and want to have as large a selection as possible within a product category. On the other hand, unit costs of many products or product variants decrease with the quantity being produced, e.g. because this way fixed costs can be spread over a larger base. So there is a trade-off between the desire for variety and the desire for efficient production. International trade

<sup>7</sup> Ricardo, David (1817). On the Principles of Political Economy and Taxation. London.

### Trade theory not to be confused with labour market theory



### Currently, most services being offshored are low-skill activities

may satisfy both needs. Manufacturers can serve the world market and, for this reason, produce greater numbers of units at lower cost. At the same time, the consumers have a greater selection, because they obtain access to product variants from abroad. Broda and Weinstein (2006) estimate that US consumers derived additional utility worth 2.6% of GDP (roughly USD 260 bn) between 1972 and 2001 thanks to imports of product variants.<sup>8</sup>

Neither the classical nor the New Trade Theory makes a statement on the medium-term effects of trade on employment. Both theories generally assume cleared labour markets. The number of the involuntarily unemployed is largely unrelated to the degree of global economic integration; rather, it depends above all on the domestic organisation of the labour markets. However, the negative effects of rigid labour markets can be amplified by trade.

### Intra-industry trade rises with economic development

The shares of inter-industry and intra-industry trade do not remain constant during the process of economic development. Catch-up countries typically increase their share of intra-industry trade. They enhance their education facilities, infrastructure and the institutional framework and in so doing lay the groundwork for the production of innovative, high-quality products. For example, there is a clear correlation between education and wealth (see chart 5).<sup>9</sup> Hence, the product ranges of the emerging markets tend to converge over the medium term with those of the industrial countries – intra-industry trade will increase. Instead of crowding each other out, they will complement and enrich each other.

Japan provides a good example of the changes in trade structures in the course of economic development. That country made spectacular advances after World War II – it was not until a phase of stagnation set in during the 1990s that the Japanese economy was no longer able to keep pace with the growth in the US (see chart 6). While one of the main selling features of Japanese products used to be the cheaper price, Japanese suppliers are now leaders in terms of quality and technology in many segments. However, their products are no longer systematically cheaper or of poorer quality than similar goods from other industrial countries. This has advantages for consumers. As an example, consumers can choose whether they prefer the Japanese game console “Playstation” or the US counterpart “Xbox”.

This process will trigger shifts in production/consumption as well as adjustments burdens that may be spread unequally. All in all, though, it is a process that can prove to be a win-win situation for all countries involved.

### Offshoring: Inter-industry or intra-industry?

In offshoring, a broad range of IT services and back-office services are relocated to low-wage countries. Many of these services currently reflect the logic of inter-industry trade. This is backed by the fact that offshoring typically describes a relationship between industrial countries and emerging markets and concentrates primarily on saving labour costs. In most cases, low-skill activities

<sup>8</sup> Broda, Christian und David E. Weinstein (2006). Globalization And The Gains From Variety. The Quarterly Journal of Economics. pp. 541-585.

<sup>9</sup> See Bergheim, Stefan (2005). Human capital is the key to growth. Success stories and policies for 2020. Current Issues. DB Research. Frankfurt am Main. August 1, 2005.

are shifted to offshore locations: agents in call centres, software programmers working to meet simple specifications etc. are prevalent.

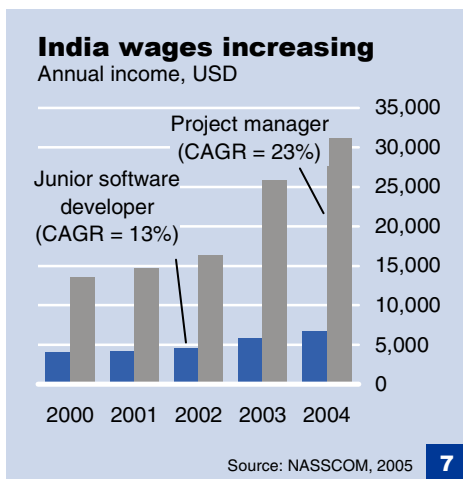
Even though many offshore employees currently have low-skill jobs, they already have a relatively advanced education enabling them to provide higher-quality services. This eases the climb up the value chain.<sup>10</sup> Employers already frequently demand that job applicants have a university degree and knowledge of one or more foreign languages. This broadens the scope of possibilities for performing sophisticated and complex services.

British or American pupils, for example, can turn to Indian teachers and tutors if they need extra help with their schoolwork or in preparing for exams. The tutoring takes place online. This example illustrates the level of sophistication some offshored services have reached already.

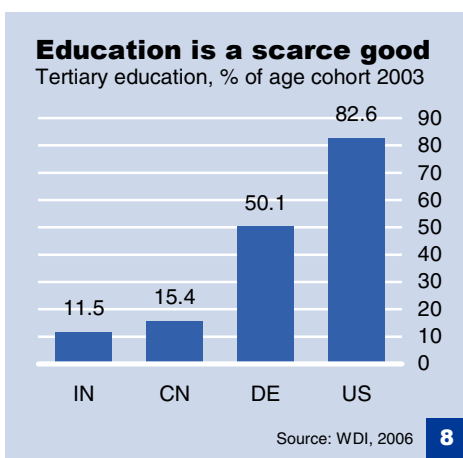
The development of incomes in India is another indicator. The average annual income per capita in India, USD 2,900, is nearly 13 times lower than in the US. But in the IT/BPO sector, the differences in income are much less pronounced: an Indian project manager already earns roughly one-third of what an IT project manager in the US would earn on average – and wages are rising more quickly in India than in America. The pay differential in the IT sector is thus less extreme than in the overall comparison and is tending to lose significance. This is reflected in surveys in which offshoring companies say that apart from cost savings the reason for relocating jobs is the good quality of the output.

Naturally, cost savings play the dominant role in offshoring, and the differences in labour costs between India and the US or Europe are still massive. But, in many segments, India's top suppliers have reached the level of their competitors in the industrial countries and can deliver comparable quality. In these segments, they have already turned onto the path of intra-industry trade.

The endowment with resources in the offshore locations in the very long run is a limiting factor. The share of qualified employees in the IT/BPO sector of offshore locations is typically much higher than the average share in the given country. In India, for instance, not quite 12% of the population in the relevant age cohort receive a tertiary education, e.g. university level. In the US the corresponding share is over 80% (see chart 8). In addition, the quality of education is not identical. A study conducted by MGI found that only a fraction of the graduates are suitable for jobs – that match their formal education – with international service providers. In Germany and the US the reading is around 80%.<sup>11</sup> In other words, qualified labour is a scarce factor of production in offshore locations in international comparison. Before countries such as India can enter intra-industry competition at the macroeconomic level, further progress in resource endowment is necessary – particularly with a view to education, but also in terms of infrastructure and institutions.



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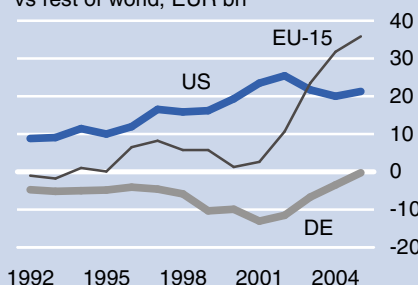
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<sup>10</sup> See Hausmann, Ricardo and Baily Klinger (2006). Structural Transformation and Patterns of Comparative Advantage in the Product Space. CID Working Paper No. 128. Harvard University. Cambridge, MA.

<sup>11</sup> Farrell, Diana et al. (2005). The Emerging Global Labor Market: Part II – The Supply of Offshore Talent in Services. McKinsey Global Institute.

### Trade surpluses in the US and the EU-15

Balance of trade in IT-based services\* vs rest of world, EUR bn



\* Balance of payments items: Computer and information services and other business services

Source: Eurostat, 2007

9

### IT-based services are mainly traded between industrial countries

The internationalisation of IT-based services can be traced by looking at the development of trade flows. In 2005, the EU-15 posted imports of IT-based services worth around EUR 244 bn and exports worth EUR 280 bn, for a related trade surplus of some EUR 36 bn. The US achieved a surplus of around EUR 21 bn on IT-based services globally. In value terms, Germany imported more IT-based services than it exported, though this deficit has been shrinking in recent years (see chart 9).

Most of the trade takes place between industrial countries. While imports from China, India and Central and Eastern Europe (CEE) have picked up more rapidly in the past than global imports and thus document the growing importance of these locations, the levels are still comparatively low.

#### EU-15: Trade in IT-based services

Computer and information services and other business services, 2005

Partner	Trade volume (% trade vs world)	Balance (EUR m)
OECD	83.7%	10,800
US	15.2%	-1,539
CEE	2.9%	3,149
China	1.1%	1,542
India	0.6%	149

Sources: DB Research, Eurostat, 2007

10

### Offshoring is not one-way traffic

Typical offshore locations continue to play a minor role in volume terms. Only 2.9% of the EU-15 trade in IT-based services is with the countries of CEE; China accounts for only 1.1% and India 0.6%. With over 83% of the total volume, the OECD countries are the main trading partners for the EU-15. The numbers also negate the impression that offshoring is all one way. In value terms, the EU-15 have exported more to typical offshoring destinations such as India, China and CEE than they have imported from there (see chart 10).

It emerges that the main battlegrounds are contested by the industrial countries. From this aspect, offshoring may be a means to increase productivity and eke out cost advantages that ensure competitive advantages within the group of industrial countries.

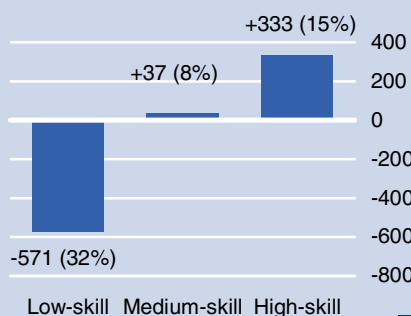
### US IT sector changing in favour of higher-skilled jobs

The US is the world leader in using offshoring in the services sector, and the volumes here are the biggest. The effects and consequences of offshoring can be observed more clearly in the American IT sector than in other markets. Besides offshoring, though, other factors also play a significant role – e.g. the business cycle, structural change and technological progress. The technology bubble around the turn of the millennium inflated employment in the IT sector, so part of the subsequent development may be explained as a reaction to this overheating.

According to the classical theory of trade, countries specialise in the goods for which they have an abundant supply of the required production factors. So the industrial countries would expect to see additional demand for skilled labour while low-skill jobs are shifted abroad. Developments in America's IT sector back up this ex-

#### Last stop: High end

IT-sector employment in the US by job level, change 1999-2005, ('000)



Sources: BLS, DB Research, 2006

11

**Rising pay in IT sector**

Job	Avg.pay 2005	CAGR
	USD	1999-2005
Low-skill	25,900	2.5
Medium-skill	43,400	1.6
High-skill	75,600	3.9
Total	57,500	5.1

Sources: BLS, DB Research, 2006

**12**

pectation. While over half a million low-skill jobs were lost between 1999 and 2005, the number of the employed in the medium to high-skill range of jobs increased (see chart 11).<sup>12</sup>

Job losses or job creation are just one possible consequence of the shift. Another possibility is wage adjustments, or a mixture of both. The way the labour market reacts depends on the elasticity of the supply of and demand for labour as well as on the flexibility of the labour market. A high minimum wage (or corresponding wage replacement benefits) for instance would limit the wage adjustment to the downside and the adjustment would be via job losses. In actual fact, wages rose nominally at all levels: the average pay of a highly-skilled IT worker climbed by about 3.9% per year between 1999 and 2005, to USD 75,600, while wages for low-skill activities rose by about 2.5% per year to USD 25,900 (see chart 12). With an average inflation rate of 2.6%, the incomes for low-skill activities thus declined slightly in real terms while rising moderately for high-skill activities, but more slowly than in the economy as a whole. Since wages have changed only little in real terms, most of the adjustment appears to have taken place via the number of employed.

All in all, the number of employees in the selected IT jobs has fallen by 200,000 since 1999. However, this decline is not fully attributable to offshoring. Many low-skill jobs have fallen victim to substitution on account of technological upgrades, not offshoring. In addition, the collapse of the “new economy” around the turn of the millennium also reduced the demand for IT staff.

**Employees have alternatives**

The big question is what happened to the over half a million employees who no longer work in the low-skilled segment? Most of the work in this segment – data entry, computer operations, telephone services, customer service etc. – does not need extensive specific training. For that reason, those made redundant have good chances of finding a job in other sectors. This is not to make light of the adjustment burdens upon those affected. But the observation that wages in this segment have remained relatively stable suggests that many employees were not prepared to accept real wage cuts, but instead sought alternative jobs. The flexible labour market, by international standards, and the relatively strong demand for labour in the US have driven this adjustment process.

**Labour market merry-go-round driving up average pay in IT sector**

The increase in medium-skill and high-skill activities also dovetails with the tenets of classical trade theory. After all, one would presume that the comparative advantage of the US lies more in high-skilled jobs requiring extensive education. The theory also suggests a shift towards more productive and thus higher-paying activities. Indeed, the average nominal remuneration for IT jobs rose by 5% per year in the US between 1999 and 2005 (about USD 14,000 altogether), i.e. faster than in any single segment. The reason is that now more employees have a job requiring medium to high skill levels.

**Offshoring boosts labour productivity**

Given the multitude of factors impacting on the number of employees and their wages, it is not easy to find the exact cause

<sup>12</sup> Low-skill activities cover the following job descriptions: telemarketer, telephone operator, switchboard operator, computer operator, data entry keyer, word processor and typist; medium-skill activities: computer support specialist; and high-skill activities: computer and information scientist (research), computer programmer, computer software engineer (applications), computer software engineer (systems), computer systems analyst, database administrator, network and computer systems administrator, network systems / data communications analyst and computer and information systems manager.





and effect. In one study, Mary Amity and Shan-Jin Wei (2005) examine the relationship between the international sourcing of services on the one hand and employment and productivity in US manufacturing on the other. They find a positive impact on productivity, estimating that between 11% and 13% of the increase in labour productivity is attributable to the more intensive international division of labour in the services sector. Small but negative employment effects emerge only in a very detailed examination of the sectors, with no employment effects to be found at a higher level of aggregation.<sup>13</sup> This is in line with the theoretical implications.

### Labour market merry-go-round creates adjustment burdens

A look at offices in Bangalore (Bengaluru), Mumbai or Prague shows that a great number of workers have already found employment in offshore production of IT and back-office services. The expenditures on offshoring allow us to roughly estimate the number of jobs created there. Note that this is gross data, i.e., no account is taken of the new jobs arising in the US or Europe in their place. The look at gross relocations serves mainly to estimate the extent of the adjustment burdens.

**Between 1.6 and 2.1 million jobs created offshore**

According to our estimates, between 1.2 m and 1.6 m offshore jobs were created for the US in IT and back-office services by early 2007. The figure for Europe is about 400,000 – 500,000 offshore jobs, of which close to 10% are for German-speaking countries.<sup>14</sup> Of course, these estimates can only offer a rough approximation of the actual value since the number of jobs cannot be determined directly.

#### Offshore production

Number of offshore jobs by import region, '000

	Europe	US
2007	400 - 500	1,200 - 1,600
Growth 2007-2008	+70 - 90	+220 - 300

Source: DB Research, 2007

13

**Not a 1:1 relationship between home market and offshore location**

Not all offshore jobs eliminate employment back home to the same degree. The lower prices make it possible for instance to offer services which would not be available otherwise – e.g. 24-hour call centres. Moreover, given the lower wages production tends to be more labour-intensive, i.e. the number of workers employed to execute a task is higher at the offshore location than it would have been at home. Besides, the offshoring company usually maintains a crew in the home market (retained organisation) that controls the offshore activities and liaises with the domestic production segments. The number of employees offshore may thus be larger than the number of job redundancies in the home market.

**Offshore providers achieve advantages of specialisation**

But the opposite effect may also kick in. Many offshore suppliers need fewer workers for a particular service than the offshoring

<sup>13</sup> Amity, Mary and Shang-Jin Wei (2005). Services Offshoring, Productivity, and Employment: Evidence from the United States. IMF Working Paper No. 05/238. p. 18 f.

<sup>14</sup> The estimates are based on the export revenues of India's IT and BPO sectors which we extrapolate for the global market. Moreover, we take output per capita in the Indian IT sector as our benchmark for calculating the number of jobs. The increase from 2007 to 2008 is based on the prospective growth rates for IT offshoring.

**German-speaking countries use offshoring to a lesser degree**

company would. One reason for this, for example, is that they work for several customers at the same time and therefore find it easier to smooth over the fluctuations in demand that arise with individual customers – e.g. uneven capacity utilisation at a call centre. A single company, by contrast, would have to maintain a certain level of surplus capacity in order to handle unexpected peaks in demand.

The net effect of these considerations is not clear, as it depends on the respective service offshored. Nevertheless, it seems sensible to use the number of jobs created offshore as an indicator of the adjustment pressure.

Offshoring is particularly widespread in Anglo-American countries – English-speaking employees at the offshore locations gave the trend a fillip. But the fact too that the labour markets in the US and the UK are more flexible than in continental Europe eased the moves to restructure production towards an international division of labour. Our expectation for the US is that an additional 220,000–300,000 jobs will be created at offshore locations this year. This is equivalent to about 5-7% of the jobs in the American IT sector. However, the adjustment burdens will disperse beyond the IT employees since other occupational groups will also share the burden.

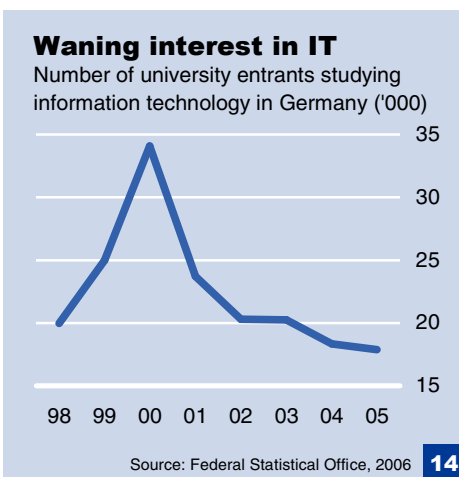
The German-speaking countries use offshoring to a lesser degree. We estimate that between 2007 and 2008 the number of offshore jobs will increase by around 7,000-9,000. This corresponds to around 1% of the employees in the information and communications technology (ICT) sector – the normal turnover rate is usually higher. Also, employees in other sectors are affected by offshoring as well which reduces the burden upon the ICT employees.

**Adjustment burdens are manageable – if the right steps are taken**

An assessment of the adjustment burdens should differentiate between the current developments in IT-based services and the future outlook when today's offshore locations will have progressed farther along the value chain. At present, jobs in Anglo-American countries in particular are the ones being relocated offshore. The rising demand for IT services and relatively flexible labour markets ease the burdens of adjustment there. Moreover, the US and the UK especially are major exporters of IT-based services.

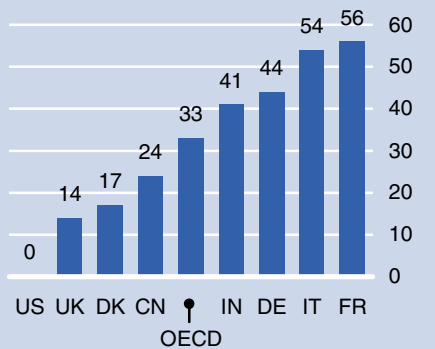
All the same, the relocation moves frequently have the biggest impact on low-skilled workers. The relatively stable wages for low-skill activities in the American IT sector are a sign that the workers who lose their jobs there can find alternatives in other segments – otherwise they would probably accept wage cuts. Nevertheless, the increasingly international division of labour – not only for IT-based services – ought to be an incentive to raise the skill levels of more employees. After all, the cyclical upturn over the past few years has cushioned the impact of the structural change, but this will not necessarily always be the case. Furthermore, incomes for low-skill jobs are not growing as fast as for high-skill jobs.

In the German-speaking countries only a small percentage of workers are affected by offshoring. In fact, the IT sector is moaning about the lack of qualified staff available in Germany: in a 2006 survey conducted by BITKOM, the umbrella association for the sector, some 41% of the ICT firms polled said they had problems finding suitably qualified staff. At the same time, the number of university entrants studying information technology is declining (see chart 14). This apparent contradiction is an indication of the current



### Rigid labour markets in continental Europe

Index of employment rigidity, 2006



The higher the value, the more rigid the labour market

Source: Doing Business, 2007

15

uncertainty over future developments: after all, the choice of university programme is a significant step – especially in Germany – towards building a career. Many potential entrants might decide against enrolling in a computer sciences programme for fear that most IT jobs some 10 or 20 years down the road could be assigned in offshore locations. In this case, it might be difficult for these students to find an equivalent job in other segments.

Flexibility is a decisive quality in efforts to help adjust to changing conditions of competition. This includes, for example, the possibility of employees being able (and wanting) to take up demanding jobs outside the sphere of their occupational training if so required by the situation in the market. Their education and training should convey fundamental knowledge and methods that pave the way to learning other disciplines and acquiring specialised knowledge all their life through. If these prerequisites were fulfilled, it would be less of a risk for today's students to engage in a programme with an uncertain future.

In continental Europe, comparatively rigid labour markets hamper the adjustment process. In Germany, Italy and France the employment conditions are much more rigid than the OECD average. Labour rules are more flexible not only in the US and the UK, but also in China and India (see chart 15).

It is more difficult for companies in countries with rigid labour markets to flexibly redeploy or fire staff. Therefore, offshoring is initially less attractive for them and they can achieve fewer cost savings than their competitors in more flexible markets. They pass on these disadvantages to their employees. The employees have a harder time to find a new, equivalent job if their old one is offshored or if their employers have to bow to the competition and exit the market.

### Specialisation makes flexibility all the more important

The international division of labour fosters the specialisation of economies. Thanks to innovations they can tap new niches and expand existing ones. But without flexibility it is more difficult to develop or alter specialised skills. Moreover, specialised production structures are more vulnerable to shocks – e.g. in the form of sudden shifts in demand. Here, too, a flexible response can help to cushion the adjustment costs.

Offshoring IT-based services does not slash jobs, but instead provides an engine of change. These changes raise productivity on average, but typically harbour the side-effects of disadvantaging specific groups and triggering adjustment costs. By taking certain steps from the outset the negative consequences can be kept to a minimum: e.g. by boosting innovative strength, education facilities and labour market flexibility. An extrapolation of the GDP growth rates shows that it may still take China over 50 years, and India over 90 years, to attain Germany's per capita income level.<sup>15</sup> This time frame gives the current industrial countries ample opportunity to adjust to the necessary changes.

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<sup>15</sup> The bases used are the fundamental growth rates in Bergheim, Stefan (2005). Global growth centres 2020: Formel-G for 34 economies. Current Issues. DB Research. Frankfurt am Main. March 23, 2005.

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